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Chronic CAD/Stable Ischemic Heart Disease

DIFFERENTIAL EFFECTS OF COLD PRESSOR AND ACETYLCHOLINE DURING ENDOTHELIAL FUNCTION ASSESSMENT IN WOMEN WITH NO OBSTRUCTIVE CORONARY ARTERY DISEASE: THE NHLBI-SPONSORED WOMEN'S ISCHEMIA SYNDROME EVALUATION (WISE) STUDY

ACC Moderated Poster Contributions
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Session Title: Non-Obstructive CAD: What Are We Missing?
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Authors: *R. David Anderson, Puja Mehta, Janet Wei, B. Delia Johnson, John Petersen, Eileen Handberg, Chrisandra Shufelt, Saibal Kar, Bruce Samuels, Babak Azarbal, Kamlesh Kothawade, Sheryl Kelsey, Barry Sharaf, Leslee Shaw, Carl Pepine, C. Noel Bairey Merz, University of Florida, Gainesville, FL, USA*

Background: Assessment of coronary endothelial function with intracoronary acetylcholine (IC-ACH) provides diagnostic and prognostic data in patients with suspected microvascular coronary dysfunction (MCD), but requires complicated preparation in clinical practice and is not applicable for noninvasive testing. Cold pressor testing (CPT) is a simple and safe stimulus useful for coronary physiological testing and myocardial perfusion imaging. We compared coronary response to IC-ACH and CPT in women with suspected MCD.

Methods: 39 women with ischemia, no obstructive CAD, and suspected MCD underwent coronary reactivity testing with a Doppler flow wire (FloWire® Volcano, San Diego, CA) in a proximal left coronary artery. Coronary flow velocity and diameters were determined before and after IC-ACH (36.4 mcg infused over 3 minutes), and before and after the placement of an ice-pack to the forehead for 3 minutes.

Results: Mean age was 53 (23-73 years) and 37% were non-Caucasian. All subjects tolerated both stimuli without complication. Comparative hemodynamic and coronary reactivity data are summarized below.

Conclusions: In this cohort, IC-ACH and CPT have similar peripheral hemodynamic effects (HR and BP) but differential effects on coronary endothelial function and blood flow. These results suggest that forehead CPT may be a less potent stimulus compared with IC-ACH for invasive coronary endothelial function and coronary flow assessments likely related to adrenergic mediated vasoconstriction.

Table (N = 39)

	ACH	CPT	P
Δ HR (bpm)	-0.2±7.8	1.5±7.8	0.19
Δ SBP (mmHg)	1.4±18.1	-1.8±13.6	0.38
Δ DBP (mmHg)	0.7±15.3	-1.7±9.1	0.51
Δ Coronary Diameter (%)	-7.6±16.7	1.4±8.8	0.010
Δ Coronary Blood Flow (%)	101±101	16±40	0.0003